

REMARKS/ARGUMENTS

Claims 1, 3, and 8-17 are pending.

Claims 2 and 4-7 have been cancelled.

Claims 8-9 have been withdrawn.

Claims 1, 3, and 10-17 are rejected under 35 U.S.C. 103(a) over Yamagishi et al., JP 2002-222707 and EP 1066823. The rejection is traversed because

- (a) JP '721 does not teach potassium ion, and the claimed amount of potassium ion;
- (b) the combination of JP '721 and EP '823 is impermissible; and
- (c) the claimed oral preparation provides an advantageous result.

The advantageous effect of the claimed oral preparation is that a small amount of calcium phosphate that is present in a small gap between enamel rods of the teeth is turned into fluoride-containing fine particles to form a light scattering layer inside enamel which causes an irregular reflection in response to an incident light radiated from the outside. See pages 1-3 of the present specification. Normally, internal discoloration of the teeth is apparent through transparent enamel of the teeth; however, this light scattering layer which looks white and opaque can shield the yellowish color of the teeth and give the teeth a white appearance, therefore. *Id.* The factors that form the light scattering layer include the components (A), (B) and (C), and a specified pH condition, e.g., see page 10 of the present specification. As shown in the Examples and Comparative Examples of Example B series and Example C series of the present specification, the light scattering layer is not formed when any of the components (A), (B) and (C) is not contained.

The present specification describes that the oral preparation of **JP '721** forms a layer of calcium fluoride on a surface of the teeth to provide whiteness and gloss (pages 2-3, the bridging paragraph). The composition of JP '721 is used for whitening the surface of the

teeth, wherein the exogenous coloring matter adheres to a tooth when a person eats, drinks, e.g., coffee or tea, smokes, etc. ([0002]).

The oral preparation of JP '721 comprises a source of fluoride and an organic acid. However, JP '721 does not teach potassium ion. A potassium ion supplying compound is not used in the Examples of JP '721. Also, JP '721 fails to describe the amount of potassium ion so that a light scattering layer can be formed.

The composition of JP '721 is similar to the composition of the Comparative Examples in Tables B1-B3 of the present specification which do not comprise potassium ion and do not form a light scattering layer inside a tooth as described on pages 33-34 of the present specification.

The addition of potassium ion as in the Inventive Examples in Tables B1-B3 provides the formation of an internal light scattering layer which make teeth whiter. Thus, the claimed oral preparation provides an advantageous result.

The Examiner has agreed that JP '721 does not teach potassium ion (the OA, page 3). The Examiner has relied on EP '823 describing a bleaching composition in which potassium ion is added as a desensitizer ([0011]). The Examiner is of the opinion that adding potassium ion as a desensitizer to the surface whitening composition of JP '721 would have been obvious and would have provided an expected result, e.g., whitening and desensitizing.

In response, it is noted that introducing potassium ion of EP '823 in the whitening composition of JP '721, which provides gradual formation of calcium fluoride on the surface of the teeth (see [0006]), changes the formation of the surface calcium fluoride layer to the formation of an internal light scattering layer, as demonstrated in the present specification. Thus, the goal of JP '721 of gradual formation of calcium fluoride on the surface of the teeth cannot be realized with the modification by potassium ion and the combination of JP '721 and EP '823 is impermissible.

Further, by using a large amount of potassium ion (C), the present invention made it possible to promote the formation of a light scattering layer inside the enamel of the teeth and to decrease the amount of (B) to 0.03 to 0.5 mol/kg (e.g., in the Examples of the present specification, the upper limit is 0.15 mol/kg). As a result of decreasing the amount of (B), the composition is provided with good flavor. This result is not obvious based on the disclosure of the cited references. JP '721 does not describe using a large amount of (C) and uses a large amount of (B), i.e., 0.1-5 mol/kg (0.4-1.5 mol/kg in the Examples).

The claimed oral preparation provides an advantageous result and the mechanism of the formation of a light scattering layer when potassium ion is added is described on page 15, line 19 to page 17, line 5 of the present specification.

In addition, JP '721 addresses diminishing sensitivity of teeth in the Examples, e.g., paragraph [0028] and Tables 1-3 (please, see [0034] of **US 2003/0124068** as an English equivalent). It is described that the composition of Examples 3-1 – 3-4 when used for one month provided the alleviation of pain which was sensed upon drinking cold water.

Thus, a skilled artisan would not have been motivated to introduce a desensitizer of EP '823 in the composition of JP '721 which already alleviates pain sensed upon drinking cold water.

Thus, EP '823 and JP '721 do not make the claimed oral preparation obvious. Applicants request that the obviousness rejection be withdrawn.

Application No. 10/533,080
Reply to Office Action of May 3, 2010

A Notice of Allowance for all pending claims is requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Marina I. Miller, Ph.D.

Attorney of Record

Registration No. 59,091

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 07/09)